

WHAT IS CLAIMED IS:

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1. A communications device, comprising:
    - a backplane;
    - 5 a plurality of backplane cards coupled to the backplane, each backplane card assigned a standard-based network address; and
    - a backplane switch coupled to the backplane and operable to receive a first data packet with a first network address assigned to a backplane card and to communicate the first data packet to the backplane card using the backplane.
  - 10 2. The communications device of Claim 1, wherein the standard-based network address is a Media Access Control (MAC) address; and the backplane switch communicates the first data packet to the backplane card according to an Ethernet protocol.
  - 15 3. The communications device of Claim 1, wherein the backplane switch is further operable to receive a second data packet with a second network address assigned to an external network device and to communicate the second data packet to the network device.
  - 20 4. The communications device of Claim 1, wherein:
    - the backplane switch is coupled to a network switch;
    - the network switch is coupled to a plurality of external network devices, each network device assigned a standard-based network address; and
    - 25 the backplane switch is further operable to receive a second data packet with a second network address assigned to a network device and to communicate the second data packet to the network switch for communication to the network device assigned the second network address.

5. The communications device of Claim 1, wherein the backplane includes a plurality of backplane buses, at least one of the backplane buses providing a dedicated bandwidth between a backplane card and the backplane switch.

5 6. The communications device of Claim 1, wherein at least one backplane card is a gateway card coupled to a telephone network, the gateway card operable to receive from the telephone network a request to establish a telephone call with an external network device, to identify an Internet Protocol (IP) address associated with the network device, to process data from the telephone call into digital data packets, to 10 associate the data packets with the identified IP address, and to communicate the data packets to the external network device using the backplane switch.

15 7. The communications device of Claim 6, wherein the external network device is an IP telephone.

15 8. The communications device of Claim 6, wherein:  
the gateway card is further operable to determine that the data packets include voice information and, in response, to assign a high priority level to the data packets by setting one or more priority bits in each of the data packets;

20 the backplane switch is further operable to communicate the data packets according to the assigned priority level.

25 9. The communications device of Claim 1, wherein the backplane switch is further operable to examine one or more priority bits in the first data packet, to identify a quality of service level associated with the priority bits according to IEEE 802.1q, and to communicate the first data packet according to the identified quality of service level.

10. The communications device of Claim 1, wherein at least one backplane card is a gateway card coupled to a data network, the gateway card operable to receive data packets associated with an Internet Protocol (IP) address and to communicate the data packets to an external network device assigned the associated IP address using the backplane switch.

11. The communications device of Claim 1, wherein at least one of the backplane cards may be coupled to the backplane and de-coupled from the backplane while the communications device continues to operate.

12. A method of communicating data packets using a plurality of backplane cards coupled to a backplane of a communications device, the method comprising:

- assigning a standard-based network address to each backplane card;
- 5 receiving at a backplane switch a first data packet with a first network address assigned to a backplane card; and
- communicating the first data packet from the backplane switch to the backplane card using the backplane.

10 13. The method of Claim 12, further comprising communicating the first data packet from the backplane switch to the backplane card using an Ethernet protocol, wherein the standard-based network address of each backplane card is a Media Access Control (MAC) address.

15 14. The method of Claim 12, further comprising:

- receiving at the backplane switch a second data packet with a second network address assigned to an external network device; and
- communicating the second data packet from the backplane switch to the network device assigned the second network address.

20 15. The method of Claim 12, further comprising:

- receiving at the backplane switch a second data packet with a second network address assigned to an external network device;
- communicating the second data packet from an external port of the backplane switch to a network switch; and
- 25 communicating the second data packet from the network switch to the external network device assigned the second network address.

16. The method of Claim 12, further comprising providing a dedicated bandwidth between the backplane switch and at least one of the backplane cards using a backplane bus.

5 17. The method of Claim 12, further comprising:  
receiving from a telephone network a request to establish a telephone call with an external network device;

10 identifying an Internet Protocol (IP) address associated with the external network device;

processing data from the telephone call into digital data packets;  
associating the data packets with the identified IP address;  
communicating the data packets to the external network device using the backplane switch.

15 18. The method of Claim 17, wherein the external network device is an IP telephone.

19. The method of Claim 17, further comprising:  
determining whether the data packets include voice information; and  
20 assigning a high priority level to the data packets by setting one or more priority bits in each of the data packets in response to determining that the data packets include voice information.

25 20. The method of Claim 12, further comprising:  
examining one or more priority bits in the first data packet;  
identifying a quality of service level associated with the priority bits according to IEEE 802.1q; and  
communicating the first data packet from the backplane switch to the backplane card according to the identified quality of service level.

21. The method of Claim 12, further comprising:  
receiving at a backplane card a second data packet from a data network;  
identifying an Internet Protocol (IP) address associated with the second data  
packet;

5           communicating the second data packet to an external network device assigned  
the IP address using the backplane switch.

10           22. The method of Claim 12, wherein at least one of the backplane cards  
may be coupled to the backplane or de-coupled from the backplane while the  
communications device continues to operate.

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23. A backplane card assigned a first network address and coupled to a backplane within a communications device, the card comprising:

an internal interface coupled to a backplane bus;

5 a communication module operable to receive a first data packet from the backplane bus using the internal interface if the first data packet's destination address corresponds to the first network address, the communication module further operable to communicate a second data packet to another backplane card by associating the second data packet with a second network address assigned to the other backplane card and communicating the second data packet to the backplane bus using the internal interface.

10 24. The backplane card of Claim 23, wherein the first and second network addresses are standard-based network addresses.

15 25. The backplane card of Claim 23, wherein:

the first and second network addresses are Media Access Control (MAC) addresses; and

20 the communication module receives the first data packet from the backplane bus and communicates the second data packet to the backplane bus according to an Ethernet protocol.

25 26. The backplane card of Claim 23, wherein the backplane bus provides a dedicated bandwidth between the backplane card and a backplane switch.

27. The backplane card of Claim 23, wherein the communication module is further operable to communicate a third data packet to a network device external to the communications device by associating the third data packet with a third network address assigned to the network device and communicating the third data packet to the backplane bus using the internal interface.

28. The backplane card of Claim 23, further comprising:  
an external port coupled to a telephone network, the external port operable to receive from the telephone network a request to establish a telephone call with a network device external to the communications device, and  
5 wherein the communication module is further operable to identify an Internet Protocol (IP) address associated with the external network device, to process data from the telephone call into digital data packets, and to communicate the data packets to the external network device using the backplane bus.
- 10 29. The backplane card of Claim 28, wherein the communication module is further operable to determine that the data packets include voice information and, in response, to assign a high priority level to the data by setting one or more priority bits in each of the data packets.
- 15 30. The backplane card of Claim 23, wherein the communication module is further operable to set one or more priority bits in the second data packet to indicate a quality of service level according to IEEE 802.1q.
- 20 31. The backplane card of Claim 23, further comprising:  
an external port coupled to a data network, the external port operable to receive a data packet associated with an Internet Protocol (IP) address; and  
wherein the communication module is further operable to communicate the data packet to a network device assigned the identified IP address using the backplane bus.  
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32. The backplane card of Claim 23, wherein the backplane card may be coupled to the backplane and de-coupled from the backplane while the communications device continues to operate.

33. A communications system, comprising:
- a plurality of network devices, each network device assigned a network address;
- a communications device, comprising:
- 5 a plurality of backplane cards coupled to a backplane, each backplane card assigned a network address; and
- 10 a backplane switch coupled to the backplane and the network devices, the backplane switch operable to receive a first data packet with a first network address assigned to a network device and, in response, to communicate the first data packet to the network device, the backplane switch further operable to receive a second data packet with a second network address assigned to a backplane card and, in response, to communicate the second data packet to the backplane card using the backplane; and
- 15 wherein the network devices are external to the communications device.
34. The communications system of Claim 33, wherein the network addresses are standard-based network addresses.
35. The communications system of Claim 33, wherein:
- 20 the network addresses are Media Access Control (MAC) addresses; and
- the backplane switch communicates data packets to the network devices and backplane cards according to an Ethernet protocol.
36. The communications system of Claim 33, wherein the backplane includes a plurality of backplane buses, at least one of the backplane buses providing a dedicated bandwidth between the backplane switch and one of the backplane cards.

37. The communications system of Claim 33, wherein at least one backplane card is a gateway card coupled to a telephone network, the gateway card operable to receive from the telephone network a request to establish a telephone call with an external network device, to identify an Internet Protocol (IP) address associated with the external network device, to process data from the telephone call into digital data packets, to associate the data packets with the identified IP address, and to communicate the data packets to the external network device using the backplane switch.

10 38. The communications system of Claim 37, wherein the external network device is an IP telephone.

15 39. The communications system of Claim 37, wherein:  
the gateway card is further operable to determine that the data packets include voice information and, in response, to assign a high priority level to the data packets by setting one or more priority bits in each of the data packets; and  
the backplane switch is further operable to communicate the data packets including voice information according to the assigned priority level.

20 40. The communications system of Claim 33, wherein the backplane switch is further operable to examine one or more priority bits in the first data packet, to identify a quality of service level associated with the priority bits according to IEEE 802.1q, and to communicate the first data packet according to the identified quality of service level.

25 41. The communications system of Claim 33, wherein at least one backplane card is a gateway card coupled to a data network, the gateway card operable to receive data packets associated with an Internet Protocol (IP) address and to communicate the data packets to an external network device assigned the associated IP address using the backplane switch.

42. The communications system of Claim 33, wherein at least one of the backplane cards may be coupled to the backplane and de-coupled from the backplane while the communications device continues to operate.

43. A method of communicating data using a communications device, the communications device including a backplane coupled to a backplane switch and a plurality of backplane cards, the backplane switch coupled to at least one network device external to the communications device, the method comprising:

5 assigning a network address to each backplane card and the external network device;

receiving, at the backplane switch, data associated with a network address;

communicating the data from the backplane switch to the external network device if the associated network address is assigned to the network device; and

10 communicating the data from the backplane switch to a backplane card using the backplane if the associated network address is assigned to the backplane card.

44. The method of Claim 43, wherein the network address assigned to each backplane card and the external network device is a standard-based network.

15 45. The method of Claim 43, wherein the network address assigned to each backplane card and the external network device is a Media Access Control (MAC) address.

20 46. The method of Claim 43, further comprising providing a dedicated bandwidth between the backplane switch and at least one of the backplane cards using a backplane bus.

47. The method of Claim 43, further comprising:  
receiving from a telephone network a request to establish a telephone call with  
an external network service;  
identifying an Internet Protocol (IP) address associated with the external  
5 network device;  
processing data from the telephone call into digital data packets;  
associating the data packets with the identified IP address;  
communicating the data packets from a backplane card to the backplane  
switch; and  
10 communicating the data packets to the external network using the backplane  
switch.

48. The method of Claim 47, wherein the external network device is an IP  
telephone.

15 49. The method of Claim 47, further comprising:  
determining whether the data packets include voice information; and  
assigning a high priority level to the data packets by setting one or more  
priority bits in each data packet in response to determining that the data packets  
20 include voice information.

50. The method of Claim 43, further comprising:  
examining one or more priority bits associated with the data;  
identifying a quality of service level associated with the priority bits according  
25 to IEEE 802.1q; and  
communicating the data from the backplane switch according to the identified  
quality of service level.

5 and

communicating the data packet to an external network device assigned the identified IP address using the backplane switch.

10 52. The method of Claim 43, wherein at least one of the backplane cards may be coupled to the backplane or de-coupled from the backplane while the communications device continues to operate.

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53. A backplane switch coupled to a backplane of a communications device, the communications device having a plurality of backplane cards coupled to the backplane, the backplane switch comprising:

5 a plurality of internal ports, each internal port associated with a backplane card and operable to communicate with the associated backplane card using the backplane;

at least one external port associated with a network device external to the communications device and operable to communicate with the external network device; and

10 a processing module coupled to the internal ports and the external port, the processing module operable to receive a first data packet with a first network address assigned to the network device, to identify the external port associated with the network device, and to communicate the first data packet to the external port for communication to the network device, the processing module further operable to receive a second data packet with a second network address assigned to a backplane card, to identify an internal port associated with the backplane card, and to communicate the second data packet to the identified internal port for communication to the backplane card.

20 54. The backplane switch of Claim 53, wherein the first and second network addresses are standard-based network addresses.

25 55. The backplane switch of Claim 53, wherein:  
the first and second network addresses are Media Access Control (MAC) addresses; and  
each internal port communicates data packets to the associated backplane card according to an Ethernet protocol.

30 56. The backplane switch of Claim 53, wherein the backplane includes a plurality of backplane buses, at least one of the backplane buses providing a dedicated bandwidth between an internal port and an associated backplane card.

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57. The backplane switch of Claim 53, wherein the external port is coupled to a network switch serving a plurality of external network devices and is further operable to communicate the data with the first network address to the network switch for communication to the network device assigned the first network address.

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58. The backplane switch of Claim 53, wherein the backplane switch is further operable to examine one or more priority bits in the first data packet, to identify a quality of service level associated with the priority bits according to IEEE 802.1q, and to communicate the first data packet according to the identified quality of service level.

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59. The backplane switch of Claim 53, wherein at least one of the backplane cards may be coupled to the backplane and de-coupled from the backplane while the communications device continues to operate.